



## **Air Quality Statement of Basis**

**Tier II Operating Permit and Permit to Construct  
No. T2-020412**

**Charmac Trailers, Twin Falls, Idaho**

**Facility ID No. 083-00068**

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**FINAL PERMIT**

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## ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
Btu/hr	British thermal units per hour
Charmac	Charmac Trailers
CO	carbon monoxide
CFR	Code of Federal Regulations
DEQ	Department of Environmental Quality
HAPs	hazardous air pollutants
HVLP	high-volume, low-pressure
IDAPA	a number designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
MACT	Maximum Available Control Technology
MSDS	material safety data sheets
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO <sub>x</sub>	nitrogen oxides
NSPS	New Source Performance Standards
PM	particulate matter
PM <sub>10</sub>	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	Prevention of Significant Deterioration
PTC	permit to construct
SIP	State Implementation Plan
SO <sub>2</sub>	sulfur dioxide
TAP	toxic air pollutant
THAP	Total Hazardous Air Pollutant
TTEMI	Tetra Tech EM Inc.
VOC	volatile organic compound

## 1. PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01 Subparts 400 et seq. and 200 et seq., *Rules for the Control of Air Pollution in Idaho*.

## 2. PROJECT DESCRIPTION

On September 12, 2002, Charmac Trailers (Charmac) submitted a Tier II operating permit application and requested that the Department of Environmental Quality (DEQ) issue a Tier II operating permit for the facility located in Twin Falls. Several submittals were received from Charmac regarding emissions associated with the painting operations at the facility. The emission sources at the facility are listed in Table 1.

Table 1 Emissions Sources

Source Description	Control Device
<b>Facility-Wide Conditions</b>	
<b>Paint Booth No. 1</b> Paint booth no. 1 has been in operation since 1979 and is used to apply primer and topcoat paint to trailer frames. The booth is primarily used to paint cargo trailers. Cargo trailers are exclusively coated with black primer and black topcoat paint mixtures. The booth has one stack with the following parameters:  Height (m) <sup>a</sup> = 4.88 Stack Temperature (K) <sup>b</sup> = 293 Stack exit flow rate (cf/m) <sup>c</sup> = 5,295 Stack diameter (m) = 1.38	Particulate matter emissions from paint booth no. 1 are controlled by filters with the following specifications:  Manufacturer: Superior Glass Fibers, Inc. Type: Glass Fiber Paint Arrestor P Model: TY 26-300-22-00 Control Efficiency: 96%
<b>Paint Booth No. 2</b> Paint booth No. 2 has been in operation since 1986 and is used to apply primer and topcoat paint to trailer frames. This booth has two identical stacks. Each stack's parameters are as follows:  Height (m) <sup>a</sup> = 4.57 Stack Temperature (K) <sup>b</sup> = 293 Stack exit flow rate (cf/m) <sup>c</sup> = 5,295, each Stack diameter (m) = 1.19	Particulate matter emissions from paint booth No. 2 are controlled by filters with the following specifications:  Manufacturer: Superior Glass Fibers, Inc. Type: Glass Fiber Paint Arrestor P Model: TYB 26-300-22-C-4-00 Control Efficiency: 96%
<b>Natural Gas-Fired Space Heaters</b>	None
<b>Welding Operations</b>	None

<sup>a</sup> m = meters

<sup>b</sup> k = degrees Kelvin

<sup>c</sup> cf/m = cubic feet per minute

## 3. FACILITY DESCRIPTION

Charmac is a recreational trailer manufacturing company located at 452 South Park Avenue in Twin Falls, Idaho. Charmac manufactures trailers used for recreational purposes, as well as for cargo and livestock transport. All trailers are manufactured from the ground up using steel and aluminum frames welded on site using a jig and welding platform. All aspects of the manufacturing process are performed at this location.

Charmac manufactures seven different specialized types of trailers, each with its own specific manufacturing and production requirements. All trailers go through the following general steps in the manufacturing process:

1. Frame alignment, welding, and construction
2. Frame washing and paint preparation
3. Primer and topcoat paint application to trailer frames
4. External sheeting and coatings
5. Internal components, flooring, and inspection
6. Final wash

**Emission sources at the facility are as follows:**

### **Paint Booth Operations**

Charmac operates two paint booths. The booths are used to apply primer and topcoat paint to the trailers. Each paint booth is operated approximately five hours per day. Charmac uses PPG Inc. Automotive Paints exclusively for its paint booth applications. Charmac primarily uses PPG white and black primers and topcoat paints for:

#### Paint Booth No. 1

Paint booth no. 1 has been in operation since 1979. This is the original booth used for painting operations by Charmac. This booth operates for approximately five hours per day and is used for the application of primer and topcoat paint. It uses a pressure pump system with a high-volume, low-pressure (HVLP) spray gun with a transfer efficiency of 65%. The paint booth building is approximately 53 feet long, 24 feet wide, and 16 feet high. The paint booth has one stack.

#### Paint Booth No. 2

Paint booth no. 2 has been in operation since 1986. This booth was added to facilitate the facility's increased production needs. This booth operates approximately five hours per day for the application of primer and topcoat paint. It also uses a pressured pump system with an HVLP spray gun with a transfer efficiency of 65%. The paint booth building is approximately 60 feet long, 36 feet wide, and 25 feet high. The booth, located inside the building, is approximately 56 feet long, 16 feet wide, and 11 feet high. The paint booth has two identical stacks.

### **Natural Gas-Fired Space Heaters**

Natural gas-fired heaters were installed at Charmac between June and September 2002 to replace wood stoves previously used to heat the facility during winter months. Replacement of the wood stoves was required by a Consent Order entered into by DEQ and Charmac on January 8, 1998. The number of heaters and the heat input capacities of the heaters are as follows:

- 2 heaters with a heat input capacity of 300,000 British thermal units per hour (Btu/hr), each
- 1 heater with a heat input capacity of 125,000 Btu/hr
- 13 heaters with a heat input capacity of 80,000 Btu/hr, each
- 10 heaters with a heat input capacity of 75,000 Btu/hr, each
- 2 heaters with a heat input capacity of 90,000 Btu/hr, each
- 4 heaters with a heat input capacity of 100,000 Btu/hr, each

The total heat input from all 32 natural gas-fired space heaters is equal to 3.095 million Btu/hr.

The particulate matter with an aerodynamic diameter less than or equal to nominal 10 micrometers (PM<sub>10</sub>) emissions from the natural gas-fired heaters are included in the air dispersion modeling.

## **Welding Operations**

Welding operations are a component of the manufacturing operations at Charmac. Welding processes are used to connect tubular steel and aluminum together to form the trailer frames. Charmac uses a welding process identified as gas metal arc welding. Welding of steel tubing uses a specific steel core wire (electrode) and rod material. Aluminum welding uses a specific aluminum welding wire (electrode) and rod material. The PM<sub>10</sub> emissions associated with welding operations are included in the air dispersion modeling for this pollutant.

## **4. APPLICATION SCOPE**

Charmac submitted a facility-wide Tier II operating permit application for all emissions sources at their facility. Emissions sources include fugitive dust sources, welding operations, natural gas-fired space heaters, and painting operations. Charmac requested that DEQ issue them a facility-wide permit for these sources that reasonably assures compliance with all applicable air quality standards.

### **4.1 Application Chronology**

September 12, 2002	DEQ received from Charmac a Tier II operating permit application.
October 25, 2002	DEQ issued an incompleteness letter to Charmac.
January 8, 2003	Charmac submitted supplemental information to DEQ for the Tier II operating permit application.
February 4, 2003	DEQ issued a completeness letter to Charmac.
February 18, 2003	Charmac submitted a revised air quality dispersion model and impact analysis to DEQ.
March 7, 2003	Upon further review of the Charmac application, DEQ issued an incompleteness letter to the facility.
April 14, 2003	Charmac submitted the potential to emit for volatile organic compound (VOC) and hazardous air pollutant (HAP) emissions from the facility to DEQ. In the submittal Charmac also requested to review draft Tier II Operating Permit and Permit to Construct No. T2-020412.
May 14, 2003	DEQ issued a completeness letter to Charmac.
June 17, 2003	Charmac submitted a letter to DEQ in which it verified that all of the woodstoves had been removed from all buildings at the facility. The letter further states the following: "these stoves were made inoperable over a year ago, and then removed from the buildings shortly after."
July 1, 2003	DEQ sent Charmac a copy of draft Tier II Operating Permit and Permit to Construct No. T2-020412 for review.
August 7, 2003	Charmac submitted comments to DEQ on draft Tier II Operating Permit and Permit to Construct No. T2-020412. In the submittal Charmac also requested to review draft Tier II Operating Permit and Permit to Construct No. T2-020412 for a second time.

September 25, 2003 DEQ sent Charmac a copy of draft Tier II Operating Permit and Permit to Construct No. T2-020412 for review for a second time.

December 5, 2003 A public comment period started on December 5, 2003 and ended on January 5, 2004. No comments were received.

## **5. PERMIT ANALYSIS**

### **5.1 Process Description**

The emissions units existing at the facility are paint booth no. 1, paint booth no. 2, natural gas space heaters, and welding operations. A detailed process description for each of the paint booths is found in Tier II Operating Permit and Permit to Construct No. T2-020412. Process descriptions for the natural gas space heaters and for the welding operations are found in the Tier II operating permit application submitted on September 12, 2002.

### **5.2 Emission Estimates**

Emissions estimates were provided by Charmac in the Tier II operating permit application materials that were submitted to DEQ on September 12, 2002; February 18, 2003; April 14, 2003; and August 4, 2003. Appendix A of this statement of basis contains the emission rates for the criteria air pollutant and the hazardous air pollutant (HAP) emissions from the facility. This information was submitted by Charmac's consultant, Tetra Tech EM Inc. (TTEMI). Emissions calculations submitted with Charmac's application were checked for accuracy by DEQ's Technical Services Division.

Volatile organic compound (VOC) and HAP emissions were estimated from the information contained in the Material Safety Data Sheets (MSDS) that are included in the Tier II operating permit application. The VOC emissions from solvents used to clean the spray guns were estimated and added to the total VOC emissions for the spray booths. The PM<sub>10</sub> emissions estimates were based on worst case emissions rates for each spray gun, based upon white primer solid content as described in the MSDS.

Toxic air pollutant (TAP) emissions from the facility were not evaluated for permit applicability because the facility was constructed prior to July 1, 1995 (the date when the TAP regulations became effective). For informational purposes however, TTEMI conducted an emissions and modeling assessment for the following TAPs, as identified by the submitted MSDSs, aluminum, calcium carbonate, and potassium hydroxide.

Emissions estimates of criteria air pollutants and TAPs from the natural gas-fired combustion in the space heaters were obtained from emission factors described in *Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, U.S. Environmental Protection Agency*, and are included in Appendix A of this statement of basis. The Technical Service's engineering memorandum for the paint booths, space heaters, and welding operations emissions is provided in Appendix B of this document. These emissions calculations provided the basis for the emissions limits for PM<sub>10</sub> and VOC that are incorporated in the permit. They also provided the basis for the PM<sub>10</sub> National Ambient Air Quality Standards (NAAQS) analysis – see Appendix C of this document.

### **5.3 Modeling**

A modeling analysis was conducted to assess compliance with NAAQS was submitted in Charmac's submittal dated February 18, 2003. Modeling of all emissions units at the facility is necessary to demonstrate that the facility would not cause or significantly contribute to a violation of any ambient air quality standard. Paint booth emissions, welding operations, and emissions from the natural gas-fired

combustion in the space heaters are included in the ambient air assessment. Charmac used the ISC-PRIME model, an approved regulatory model, to assess the ambient air quality impacts. The pollutants modeled were PM<sub>10</sub> and nitrogen oxides (NO<sub>x</sub>). Although TAPs were modeled by TTEMI, DEQ did not review the modeled TAP because all emissions sources at the facility were in operation prior to July 1, 1995.

Maximum background pollutant concentrations were added to the modeled values to determine NAAQS compliance. Background concentrations values are included in Table 2 of the modeling memo from the DEQ's Technical Services Division, which is included in Appendix C of this statement of basis.

Dispersion modeling results indicate that PM<sub>10</sub> and NO<sub>x</sub> emissions from operations at Charmac will not cause or significantly contribute to a violation of any applicable NAAQS.

The VOC emissions were not modeled because there is no NAAQS for VOCs and ambient ozone concentrations are not a concern in Twin Falls, Idaho.

#### **5.4 Area / Facility Classification**

This facility is located at 452 South Park Avenue, Twin Falls, Idaho. Twin Falls is located in Air Quality Control Region (AQCR) 63 and Universal Transverse Mercator (UTM) Zone 11. The area is designated as attainment or unclassifiable for all regulated criteria air pollutants.

This facility is not a designated facility, as defined in IDAPA 58.01.01.006.27. The facility is not a major facility as defined in IDAPA 58.01.01.006.55 and IDAPA 58.01.01.008.10. The Standard Industrial Classification (SIC) code for this facility is 3715. The Aerometric Information Retrieval System (AIRS) facility classification for this facility is "B" because the uncontrolled potential to emit is below applicable major source thresholds.

### **6. PERMIT REQUIREMENTS**

The following are the Tier II operating permit/permit to construct requirements and methods used to determine compliance:

#### **Regulatory Review**

##### **Permit Scope**

The facility-wide permit establishes enforceable requirements to resolve past failures to obtain PTCs for some emissions units at Charmac. The analysis conducted for this permitting action included an ambient assessment. The results of the ambient assessment predict compliance with all applicable air quality standards. The Tier II operating permit/permit to construct is required to satisfy the requirements of IDAPA 58.01.01 Subparts 400 et seq. and 200 et seq., *Rules for the Control of Air Pollution in Idaho*.

#### **Facility-Wide Conditions**

Facility-wide conditions and methods for determining compliance are included in Section 2 of the permit. Permit Section 2 is self-explanatory and no additional detail is necessary in this statement of basis.

#### **PM<sub>10</sub> and VOC Emissions Limits (Permit Condition 3.3)**

The combined PM<sub>10</sub> emission limits from the paint booths nos. 1 and 2 have been established based on the emissions estimates submitted in the Tier II operating permit application materials and to ensure compliance with the ambient air quality standards. The combined VOC emissions limits from paint



booths nos. 1 and 2 have also been established based on emissions estimates submitted in the Tier II operating permit application materials. The emissions limits are contained in Appendix A of the operating permit.

No particulate matter (PM) emissions limits are included in this permit because the PM<sub>10</sub> emissions inherently limit the PM emissions. Also, the PM potential to emit does not trigger any new source review requirements.

### ***Compliance Demonstration (Permit Condition 3.7)***

To determine compliance with PM<sub>10</sub> and VOC emissions limits in the permit the permittee is required to monitor the type and amount of primer mixture and topcoat mixture that are sprayed in the spray paint booths on a daily and per consecutive 12-month basis. Also, the permittee will demonstrate compliance with PM<sub>10</sub> emissions limits by monitoring, on a daily basis, the pressure drops across each of the filter systems of the spray paint booths. Visible emissions will be also monitored in accordance with the facility-wide condition.

### ***Paint Booths Usage Limits (Permit Condition 3.4)***

The maximum amount of primer mixture and topcoat mixture sprayed in paint booth no. 1 and paint booth no. 2 shall not exceed 27.3 gallons per day and 9,965 gallons per any consecutive 12-month period. Primer and topcoat mixtures shall include, but not be limited to, white primer, black primer, reducer, and catalyst.

The maximum amount of paint usage limits were requested by the permittee to give them flexibility of using the type and the amount of paints in any of the permitted booths.

### ***Compliance Demonstration (Permit Condition 3.7)***

The permittee will demonstrate compliance with the daily throughput limits by monitoring the type and amount of paint processed in the paint booths on a daily and yearly basis. All monitoring records will remain on site for a period of five years and will be available to DEQ representatives upon request.

### ***Control Equipment (Permit Conditions 3.5, 3.6, 3.7, and 3.8)***

The permit requires that PM<sub>10</sub> emissions from the paint booths be controlled by properly functioning filter systems. The PM<sub>10</sub> emission limitations and subsequent compliance with the emission standards are based on the use of the filter systems. The permittee is required to prepare an operation and maintenance manual for each of the booths filter systems. The pressure drop across the filter systems will be maintained within manufacturer and operation and maintenance manual specifications that indicate proper filter operations. The permittee must install monitoring equipment in order to measure the pressure drop across the filter systems. The permittee must monitor and record the pressure drop across each of the filter systems on a daily basis. The daily monitoring will allow the permittee to track the changes and clean or replace the filters as necessary. The facility is not required to record the pressure drops across the filter systems when the paint booths are not in operation.

## **7. FEES**

A Tier II operating permit processing fee applies to this facility in accordance with IDAPA 58.01.01.407.01. The total permitted PM<sub>10</sub> and VOC emissions are equal to 34.53 tons per year (see Appendix A of permit No. T2-020412). Thus, the total PM<sub>10</sub> and VOC emissions are between 10 and 100 tons per year. Therefore, the facility is subject to a Tier II operating permit processing fee of \$5,000. The processing fee assessment spreadsheet is in Appendix D of this statement of basis.

Charmac is not a major facility as defined in IDAPA 58.01.01.008.10. Therefore, registration fees are not applicable in accordance with IDAPA 58.01.01.387.

## **8. RECOMMENDATIONS**

Based on the review of the application materials and all applicable state and federal regulations, staff recommends that DEQ issue a Tier II Operating Permit and Permit to Construct No. T2-020412 to Charmac. A public comment period on the air quality aspects was provided on the permit in accordance with IDAPA 58.01.01.404.02.b and 58.01.01.209.01.c.

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